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Heart Failure and Cardiomyopathies

TREATMENT OF HYPERKALEMIA WITH ZS-9, A SELECTIVE NONABSORBED CATION EXCHANGE RESIN, DOES NOT LEAD TO HYPOMAGNESEMIA: RESULTS FROM TWO MULTICENTER, RANDOMIZED, DOUBLE BLIND, PLACEBO-CONTROLLED PHASE 3 TRIALS

Poster Contributions

Poster Hall B1

Saturday, March 14, 2015, 10:00 a.m.-10:45 a.m.

Session Title: Many Faces of Heart Failure

Abstract Category: 14. Heart Failure and Cardiomyopathies: Clinical

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Authors: *Mohamed A. El-Shahawy, Henrik S. Rasmussen, Philip T. Lavin, Alex Yang, Wajeh Qunibi, Academic Medical Research Institute, Los Angeles, CA, USA*

Background: Hyperkalemia (HK) limits optimal use of cardioprotective RAAS inhibitors. Treatment of HK with the non-selective cation exchanger sodium polystyrene sulfonate (SPS) has limited efficacy and is associated with adverse effects such as hypocalcemia, hypomagnesemia and colonic necrosis, which are associated with cardiac arrhythmia and possible death. Sodium zirconium cyclosilicate (ZS-9) is a selective nonabsorbed cation exchanger that traps K⁺ in the gut with >25-fold selectivity for K⁺ over Ca²⁺ and Mg²⁺. ZS-9 restored and maintained K⁺ levels in HK pts in 2 Phase 3 trials. Here we report the effects of ZS-9 on serum Mg²⁺.

Methods: In one trial, HK patients were randomized to ZS-9 (1.25, 2.5, 5 or 10g) or placebo (PBO) TID for 48h after which pts achieving K⁺ 3.5-5.0 mEq/L were re-randomized to the same ZS-9 dose or PBO QD on Days 3-15. In the 2nd trial, pts were randomized to ZS-9 (10g) or PBO TID for 48h, followed by re-randomization of pts with K⁺ 3.5-5.0 mEq/L to ZS-9 (5, 10, 15g) or PBO QD for 28d. Serum Mg²⁺ was measured on Days 1, 3, 9, 15 and 21 in the 1st study and Days 1, 15 and 29 in the 2nd study.

Results: Baseline serum Mg²⁺ was similar across treatment groups in both studies (1.95-2.02 mg/dL). Repeated Mg²⁺-measurements showed no significant changes between treatment groups at any time point in either study (Figure).

Conclusion: Unlike non-selective resins (SPS), ZS-9 effectively reduced K⁺ in pts (Ash et al. 2013) without causing hypomagnesemia, demonstrating the selectivity of ZS-9 for K⁺ over Mg²⁺.

